

Alymova E. V., Kudryavtsev O. E. (Rostov-on-Don, Russia) **Neural networks usage of financial time series prediction.**

The paper examines the neural networks effectiveness in BTC / USD currency pairs prediction based on trading history from January to March 2018 in real time with one minute interval. During the research variants of neural networks are built to find a best way in solving the problem of classification and prediction the change in the price of Bitcoin in future periods.

A feedforward neural network (FNN) and a network of long short-term memory (LSTM) [1] are built. The LSTM network is implemented using the Keras library and programmed in Python language. The FNN network is implemented on the Rapidminer big data analysis platform [2], in which the required models are described as executable processes.

The forecasting accuracy of builded neural networks is tested on the source data and data calculated for each indicator of trading as ratio logarithms of next minute value to the previous one. The target indicator (increase / decrease) is calculated by the logarithm, based on the ratio of the trading close at fifth minute to the opening at the firth minute.

REFERENCES

1. *Fischer T., Krauss C.* Deep learning with long short-term memory networks for financial market predictions //European Journal of Operational Research, 2018, – vol. 270 (2), pp. 654–669.
2. *Arunadevi J., Ramya S., Raja M. R..* A study of classification algorithms using Rapidminer //International Journal of Pure and Applied Mathematics, 2018, - vol. 119(12), pp. 15977–15988.